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INFORMATION DISCLOSURE  
STATEMENT

Patent Application

Docket No. UF-371XC1

Serial No. 10/569,000



Robert R. Pace, Patent Attorney

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants : L. Curtis Hannah, Carla R. Lyerly Linebarger  
Serial No. : 10/569,000  
Filed : February 17, 2006  
For : Heat Stable Variants of Adenosine Diphosphate Glucose  
Pyrophosphorylase

Mail Stop Amendment  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

INFORMATION DISCLOSURE STATEMENT  
UNDER 37 CFR §§1.97 AND 1.98

Sir:

In accordance with 37 CFR §1.56, the references listed on the attached form PTO/SB/08 are being brought to the attention of the Examiner for consideration in connection with the examination of the above-identified patent application. A copy of each cited reference is enclosed. However, Applicants have not submitted copies of the U.S. patents or published U.S. Patent Applications cited on attached Form PTO/SB/08 pursuant to 37 CFR 1.98(a)(2)(ii).

It is respectfully requested that the references cited on the attached form PTO/SB/08 be considered in the examination of the subject application and that their consideration be made of record.

Applicants respectfully assert that the substantive provisions of 37 CFR §§1.97 and 1.98 are met by the foregoing statement.

Respectfully submitted,



Doran R. Pace  
Patent Attorney  
Registration No. 38,261  
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DRP/kmm

Attachments: Form PTO/SB/08; copies of references cited therein.



PTO/SB/08A (08-03)  
Approved for use through 07/31/2006. OMB 0851-0031  
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## INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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### Complete if Known

Application Number	10/569,000
Filing Date	February 17, 2006
First Named Inventor	L. Curtis Hannah
Art Unit	
Examiner Name	
Attorney Docket Number	UF-371XC1

Sheet 1 of 7

### U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No. <sup>1</sup>	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number - Kind Code <sup>2</sup> (if known)			
/C.K.W./	U1	US-5,625,136	04-29-1997	Koziel <i>et al.</i>	All
	U2	US-6,069,300	05-30-2000	Hannah <i>et al.</i>	All
	U3	US-5,034,322	07-23-1991	Rogers <i>et al.</i>	All
	U4	US-5,106,739	04-21-1992	Comai <i>et al.</i>	All
	U5	US-5,589,618	12-31-1996	Hannah <i>et al.</i>	All
	U6	US-5,650,557	07-22-1997	Hannah <i>et al.</i>	All
/C.K.W./	U7	US-6,403,863	06-11-2002	Hannah <i>et al.</i>	All
	U8	US-5,872,216	02-16-1999	Hannah <i>et al.</i>	All
	U9	US-			

### FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T <sup>4</sup>
		Country Code <sup>3</sup> - Number <sup>4</sup> - Kind Code <sup>5</sup> (if known)				
/C.K.W./	F1	WO 98/10082	03-12-1998	University of Florida	All	
	F2	WO 98/22601	05-28-1998	University of Florida	All	
	F3	WO 99/58698	11-18-1999	University of Florida	All	
/C.K.W./	F4	WO 01/64928	09-07-2001	Research and Development Institute, Inc.	All	
	F5	WO 02/072784	09-19-2002	University of Florida	All	
	F6	WO 03/070901	08-28-2003	University of Florida Research Foundation, Inc.	All	
	F7					

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/Cathy K. Worley/

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10/13/2010

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Attorney Docket Number	UF-371XC1

Sheet 2 of 7

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C.K.W./	R1	AINSWORTH, C. <i>et al.</i> "Adenosine diphosphate glucose pyrophosphorylase genes in wheat: differential expression and gene mapping" <i>Planta</i> , 1995, pp. 1-10, Vol. 197.	
	R2	ALTSCHUL, S.F. <i>et al.</i> "Gapped BLAST and PSI-BLAST: A new generation of protein database search programs" <i>Nucleic Acids Research</i> , 1997, pp. 3389-3402, Vol. 25, No. 17.	
	R3	ANDERSON, J.M. <i>et al.</i> "The encoded primary sequence of a rice seed ADP-glucose pyrophosphorylase subunit and its homology to the bacterial enzyme" <i>J. Biol. Chem.</i> , 1989, pp. 12238-12242, Vol. 264, No. 21.	
	R4	ANDERSON, J.M. <i>et al.</i> "Molecular characterization of the gene encoding a rice endosperm-specific ADP-glucose pyrophosphorylase subunit and its developmental pattern of transcription" <i>Gene</i> , 1991, pp. 199-205, Vol. 97.	
	R5	Badu-Apraku, B. <i>et al.</i> "Effect of temperature during grain filling on whole plant and grain yield in maize" <i>Can. J. Plant Sci.</i> , 1983, pp. 357-363, Vol. 63.	
	R6	BAE, J.M. <i>et al.</i> "Cloning and characterization of the <i>Brittle-2</i> gene of maize" <i>Maydica</i> , 1990, pp. 317-322, Vol. 35.	
	R7	BALLICORA, M.A. <i>et al.</i> "Adenosine 5'-diphosphate-glucose pyrophosphorylase from the potato tuber" <i>Plant Physiol.</i> , 1995, pp. 245-251, Vol. 109.	
	R8	BALLICORA, M.A. <i>et al.</i> "Heat stability of the potato tuber ADP-glucose pyrophosphorylase: role of Cys residue 12 in the small subunit" <i>Biochemical and Biophysical Research Communications</i> , 1999, pp. 782-786, Vol. 257.	
	R9	BELTZ, G. A. "Isolation of multigene families and determination of homologies by filter hybridization methods" <i>Methods of Enzymology</i> , 1983, pp. 266-285, Vol. 100, Academic Press, New York.	
	R10	BHAVE, M.R. <i>et al.</i> "Identification and molecular characterization of <i>Shrunken-2</i> cDNA clones of maize" <i>Plant Cell</i> , June 1990, pp. 581-588, Vol. 2.	
	R11	BURGER, B.T. <i>et al.</i> "Relative turnover numbers of maize endosperm and potato tuber ADP-glucose pyrophosphorylases in the absence and presence of 3-phosphoglyceric acid" <i>Planta</i> , 2003, pp. 449-456, Vol. 217.	
C.K.W./	R12	CHANG, J. "Corn yield in relation to photoperiod, night temperature, and solar radiation" <i>Agricul. Metero.</i> , 1981, pp. 253-262, Vol. 24.	

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First Named Inventor	L. Curtis Hannah
Group Art Unit	
Examiner Name	
Attorney Docket Number	UF-371XC1

Sheet	3	of	7
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## NON PATENT LITERATURE DOCUMENTS

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/C.K.W./	R13	CHEIKH, N. et al. "Heat stress effects on sink activity of developing maize kernels grown <i>in vitro</i> " <i>Physiologie, Plantarum</i> , 1995, pp. 59-66, Vol. 95.	
	R14	CLANCY, M. et al. "Splicing of the maize <i>Sh1</i> first intron is essential for enhancement of gene expression, and a T-rich motif increases expression without affecting splicing" <i>Plant Physiology</i> , October 2002, pp. 918-929, Vol. 130, No. 2.	
	R15	CONROY, J.P. et al. "Influence of rising atmospheric CO <sub>2</sub> concentrations and temperature on growth, yield and grain quality of cereal crops" <i>Aust. J. Plant Physiol.</i> , 1994, pp. 741-758, Vol. 21.	
	R16	COPELAND, L. et al. "Purification of spinach leaf ADP-glucose pyrophosphorylase" <i>Plant Physiol.</i> , 1981, pp. 996-1001, Vol. 68, No. 5.	
	R17	DE BOER, H. A. et al. "The <i>lac</i> promoter: a functional hybrid derived from the <i>trp</i> and <i>lac</i> promoters" <i>Proc. Natl. Acad. Sci. USA</i> , January 1983, pp. 21-25, Vol. 80, No. 1.	
	R18	DENYER, K. et al. "The effect of high temperature on starch synthesis and the activity of starch synthase" <i>Aust. J. Plant Physiol.</i> , 1994, pp. 783-789, Vol. 21, No. 6.	
	R19	DICKINSON, D.B. et al. "Presence of ADP-glucose pyrophosphorylase in shrunken-2 and brittle-2 mutants of maize endosperm" <i>Plant Physiol.</i> , 1969, pp. 1058-1062, Vol. 44, No. 7.	
	R20	DUKE, E.R. et al. "Effects of heat stress on enzyme activities and transcript levels in developing maize kernels grown in culture" <i>Environ. Exp. Bot.</i> , 1996, pp. 199-208, Vol. 36, No. 2.	
	R21	GIROUX, M.J. et al. "A single gene mutation that increases maize seed weight" <i>Proc. Natl. Acad. Sci.</i> , June 1996, pp. 5824-5829, Vol. 93.	
	R22	GREENE, T.W. et al. "Mutagenesis of the potato ADP-glucose pyrophosphorylase and characterization of an allosteric mutant defective in 3-phosphoglycerate activation" <i>Proc. Natl. Acad. Sci.</i> , February 1996, pp. 1509-1513, Vol. 93.	
	R23	GREENE, T. W. et al. "Aspartic Acid 413 is important for the normal allosteric functioning of ADP-glucose pyrophosphorylase" <i>Plant Physiol.</i> , 1996, pp. 1315-1320, Vol. 112.	
	R24	GREENE, T.W. et al. "Enhanced stability of maize endosperm ADP-glucose pyrophosphorylase is gained through mutants that alter subunit interactions" <i>Proc. Natl. Acad. Sci. USA</i> , 1998, pp. 13342-13347, Vol. 95.	
/C.K.W./	R25	HANNAH, L. C. et al. "Multiple forms of maize endosperm ADP-glucose pyrophosphorylase and their control by shrunken-2 and brittle-2" <i>Genetics</i> , August 1980, pp. 961-970, Vol. 95.	

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First Named Inventor	L. Curtis Hannah
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Sheet	4	of	7
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/C.K.W./	R26	HANNAH, L.C. "Starch synthesis in the maize seed" in <i>Advances In Cellular and Molecular Biology of Plants</i> , Vol. 4, <i>Cellular and Molecular Biology of Plant Seed Development</i> , edited by B.A. Larkins and I. K. Vasil, 1997, pp. 375-405. Kluwer Academic Publishers, Dordrecht, The Netherlands.	
	R27	HANNAH, L.C. et al. "Characterization of adenosine diphosphate glucose pyrophosphorylases from developing maize seeds" <i>Plant Physiol.</i> , 1975, pp. 297-302, Vol. 55.	
	R28	HANNAH, L.C. et al. "Characterization of ADP-glucose pyrophosphorylase from <i>Shrunken-2</i> and <i>Brittle-2</i> mutants of maize" <i>Biochem. Genet.</i> , 1976, pp. 547-560, Vol. 14, Nos. 7/8.	
	R29	HANNAH, L. C. et al. "Maize genes encoding the small subunit of ADP-glucose pyrophosphorylase" <i>Plant Physiol.</i> , September 2001, pp. 173-183, Vol. 127.	
	R30	HAWKER, J.S. et al. "High temperature affects the activity of enzymes in the committed pathway of starch synthesis in developing wheat endosperm" <i>Aust. J. Plant Physiol.</i> , 1993, pp. 197-209, Vol. 20.	
	R31	HORTON, R.M. et al. "Gene splicing by overlap extension" in <i>Methods of Enzymology: Recombinant DNA, Part H</i> , 1993, pp. 270-279, Vol. 217, part H, Academic Press, New York.	
	R32	HUNTER, R. B. et al. "Effects of photoperiod and temperature on vegetative and reproductive growth of a maize (zea mays) hybrid" <i>Can. J. Plant Sci.</i> , October 1977, pp. 1127-1133, Vol. 57.	
	R33	INGLESIA, A. et al. "Expression of the potato tuber ADP-glucose pyrophosphorylase in <i>Escherichia coli</i> " <i>J. Biol. Chem.</i> , January 1993, pp. 1081-1086, Vol. 268, No. 2.	
	R34	JENNER, C.F. "Starch synthesis in the kernel of wheat under high temperature conditions" <i>Aust. J. Plant Physiol.</i> , 1994, pp. 791-806, Vol. 21.	
	R35	JENNER, C.F. et al. "Thermal characteristics of soluble starch synthase from wheat endosperm" <i>Aust. J. Plant Physiol.</i> , 1995, pp. 703-709, Vol. 22.	
/C.K.W./	R36	JONES, R.J. et al. "Temperature effects on in vitro kernel development of maize" <i>Crop Science</i> , 1981, pp. 761-766, Vol. 21.	
	R37	JONES, R.J. et al. "Thermal environment during endosperm cell division and grain filling in maize: effects on kernel growth and development in vitro" <i>Crop Science</i> , 1984, pp. 133-137, Vol. 24.	
	R38	KARLIN, S. et al. "Methods for assessing the statistical significance of molecular sequence features by using general scoring schemes" <i>Proc. Natl. Acad. Sci. USA</i> , March 1990, pp. 2264-2268, Vol. 87.	

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/C.K.W./	R39	KARLIN, S. <i>et al.</i> "Applications and statistics for multiple high-scoring segments in molecular sequences" <i>Proc. Natl. Acad. Sci. USA</i> , June 1993, pp. 5873-5877, Vol. 90.	
	R40	KEELING, P.L. <i>et al.</i> "Elevated temperature reduces starch deposition in wheat endosperm by reducing the activity of soluble starch synthase" <i>Planta</i> , 1993, pp. 342-348, Vol. 191.	
	R41	KLECZKOWSKI, L.A. <i>et al.</i> "Insensitivity of barley endosperm ADP-glucose pyrophosphorylase to 3-phosphoglycerate and orthophosphate regulation" <i>Plant Physiol.</i> , 1993, pp. 179-186, Vol. 101, No. 1.	
	R42	LIN, T.-P. <i>et al.</i> "A starch deficient mutant of <i>Arabidopsis thaliana</i> with low ADPglucose pyrophosphorylase activity lacks one of the two subunits of the enzyme" <i>Plant Physiol.</i> , 1988, pp. 1175-1181, Vol. 88.	
	R43	MANIATIS, T. <i>et al.</i> "Nuclease <i>Ba31</i> " <i>Molecular Cloning: A Laboratory Manual</i> , 1982, Cold Spring Harbor Laboratory, Cold Spring Harbor, New York.	
	R44	MORELL, M. <i>et al.</i> "Affinity labeling of the allosteric activator site(s) of spinach leaf ADP-glucose pyrophosphorylase" <i>Journal of Biological Chemistry</i> , January 1988, pp. 633-637, Vol. 263, No. 2.	
	R45	MULLER-ROBER, B.T. <i>et al.</i> "One of two different ADP-glucose pyrophosphorylase genes from potato responds strongly to elevated levels of sucrose" <i>Mol. Gen. Genet.</i> , 1990, pp. 136-146, Vol. 224.	
	R46	NAKATA, P.A. <i>et al.</i> "Comparison of the primary sequences of two potato tuber ADP-glucose pyrophosphorylase subunits" <i>Plant Mol. Biol.</i> , 1991, pp. 1089-1093, Vol. 17.	
	R47	OKITA, T.W. <i>et al.</i> "The subunit structure of potato tuber ADPglucose pyrophosphorylase" <i>Plant Physiol.</i> , 1990, pp. 785-790, Vol. 93, No.2.	
	R48	OKITA, T.W. <i>et al.</i> "Engineering plant starches by the generation of modified plant biosynthetic enzymes" in <i>Engineering Crops for Industrial End Uses</i> , 1996, Portland Press Ltd., London.	
	R49	OLIVE, M.R. <i>et al.</i> "Isolation and Nucleotide Sequences of cDNA clones encoding ADP-glucose pyrophosphorylase polypeptides from wheat leaf and endosperm" <i>Plant Mol. Biol.</i> , 1989, pp. 525-538, Vol. 12.	
	R50	OU-LEE, T.-M. <i>et al.</i> "Effect of increased temperature in apical regions of maize ears on starch-synthesis enzymes and accumulation of sugars and starch" <i>Plant Physiol.</i> , 1985, pp. 852-855, Vol. 79.	
/C.K.W./	R51	PREISS, J. "Bacterial glycogen synthesis and its regulation" <i>Ann. Rev. Microbiol.</i> , 1984, pp. 419-458, Vol. 38.	

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# INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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**Complete if Known**

Application Number	10/569,000
Filing Date	February 17, 2006
First Named Inventor	L. Curtis Hannah
Group Art Unit	
Examiner Name	
Attorney Docket Number	UF-371XC1

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7

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Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article, (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
/C.K.W./	R52	PREISS, J. et al. "Molecular biology and regulatory aspects of glycogen biosynthesis in bacteria" <i>Progress in Nuc. Acid Res. And Mol. Biol.</i> , 1994, pp. 299-329, Vol. 47.	
	R53	PREISS, J. et al. "Starch synthesis in sinks and sources" in <i>Photosynthate Distribution in Plants and Crops: Source-sink Relationships</i> , edited by Zamski, E. et al., 1996, pp. 139-168, Marcel Dekker Inc.	
	R54	RIJVEN, A.H.G.C. "Heat inactivation of starch synthase in wheat endosperm tissue" <i>Plant Physiol.</i> , 1986, pp. 448-453, Vol. 81.	
	R55	SHAW, J.R. et al. "Genomic nucleotide sequence of a wild-type shrunken-2 allele of <i>Zea mays</i> " <i>Plant Physiology</i> , 1992, pp. 1214-1216, Vol. 98.	
	R56	SINGLETARY, G.W. et al. "Decreased starch synthesis in heat stressed maize kernels: results from reduced ADPG-pyrophosphorylase and starch synthase activities" <i>Plant Physiol.</i> 1993, Vol. 102, No. 6, supplemental.	
	R57	SINGLETARY, G.W. et al. "Heat stress during grain filling in maize: effects of carbohydrate storage and metabolism" <i>Aust. J. Plant Physiol.</i> , 1994, pp. 829-841, Vol. 21.	
	R58	SMITH-WHITE, B.J. et al. "Comparison of proteins of ADP-glucose pyrophosphorylase from diverse sources" <i>J. Mol. Evol.</i> , 1992, pp. 449-464, Vol. 34.	
	R59	SOWOKINOS, J.R. et al. "Pyrophosphorylases in <i>Solanum tuberosum</i> " <i>Plant Physiol.</i> , 1982, pp. 1459-1466, Vol. 69.	
	R60	STARK et al. "Regulation of the amount of starch in plant tissues by ADP glucose pyrophosphorylase" <i>Science</i> , October 1992, pp. 287-292, Vol. 258, No. 5080.	
	R61	THOMPSON, L.M. "Climatic change, weather variability, and corn production" <i>Agron. J.</i> , July/August 1986, pp. 649-653, Vol. 78.	
	R62	THOMPSON, L.M. "Weather variability, climatic change, and grain production" <i>Science</i> , May 1975, pp. 535-541, Vol. 188, No. 4188.	
	R63	TOLLENAAR, M. et al. "Effects of temperature on rate and duration of kernel dry matter accumulation of maize" <i>Can. J. Plant Sci.</i> , October 1988, pp. 935-940, Vol. 68.	
	R64	TSAI, C-Y. et al. "Starch-deficient maize mutant lacking adenosine diphosphate glucose pyrophosphorylase activity" <i>Science</i> , January 1986, pp. 341-343, Vol. 151, No. 3708.	
/C.K.W./	R65	WILHELM, E.P. et al. "Heat stress during grain filling in maize: effects on kernel growth and metabolism" <i>Crop Science</i> , 1999, pp. 1733-1741, Vol. 39.	

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Signature

/Cathy K. Worley/

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/C.K.W.	R66	XU, D. <i>et al.</i> "Systemic induction of a potato pin2 promoter by wounding, methyl jasmonate, and abscisic acid in transgenic rice plants" <i>Plant Molecular Biology</i> , July 1993, pp. 573-588, Vol. 22, No. 4.	
/C.K.W.	R67	YANG, T.T. <i>et al.</i> "Optimized codon usage and chromophore mutations provide enhance sensitivity with the green fluorescent protein" <i>Nucleic Acids Research</i> , November 1996, pp. 4592-4593, Vol. 24, No. 22.	
	R69		
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